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Flint Water Crisis: Everything You Need to Know

After officials repeatedly dismissed claims that Flint’s water was making people sick, residents took action. Here’s how the lead contamination crisis unfolded—and what we can learn from it.

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Fearful of using the tap water to wash their food, Flint residents Melissa and Adam Mays prepare meals with bottled water.

Brittany Greeson

A story of [environmental injustice](#) and bad decision making, the [water crisis in Flint, Michigan](#), began in 2014, when the city switched its drinking water supply from Detroit's system to the Flint River in a cost-saving move. Inadequate treatment and testing of the water resulted in a series of major water quality and health issues for Flint residents—issues that were chronically ignored, overlooked, and discounted by government officials even as [complaints mounted](#) that the foul-smelling, discolored, and off-tasting water piped into Flint homes for 18 months was causing skin rashes, hair loss, and itchy skin. The Michigan Civil Rights Commission, a state-established body, [concluded](#) that the poor governmental response to the Flint crisis was a “result of systemic racism.”

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the determined, relentless efforts of the [Flint community](#)—with the support of doctors, scientists, journalists, and citizen activists—that shined a light on the city’s severe mismanagement of its drinking water and forced a reckoning over how such a scandal could have been allowed to happen.

Flint Water Crisis Summary

Long before the recent crisis garnered national headlines, the city of Flint was eminently familiar with water woes. For more than a century, the Flint River, which flows through the heart of town, has served as an unofficial waste disposal site for treated and untreated refuse from the many [local industries](#) that have sprouted along its shores, from carriage and car factories to meatpacking plants and lumber and paper mills. The waterway has also received raw sewage from the city’s waste treatment plant, agricultural and urban runoff, and toxics from leaching landfills. Not surprisingly, the Flint River is rumored to have caught fire—twice.

As the industries along the river’s shores evolved, so too did the city’s economy. In the mid-20th century, Flint—the [birthplace of General Motors](#)—was the flourishing home to nearly 200,000 people, many employed by the booming automobile industry. But the 1980s put the brakes on that period of prosperity, as rising oil prices and auto imports resulted in shuttered auto plants and laid-off workers, many of whom eventually relocated. The city found itself in a precipitous decline: Flint’s [population](#) has since plummeted to just 100,000 people, a majority of whom are African-American, and about 45 percent of its residents live below the poverty line. Nearly [one in six](#) of the city’s homes has been abandoned.

This was the lay of the land in 2011, when Flint, cash-strapped and shouldering a [\\$25 million deficit](#), fell under state control. Michigan Governor Rick Snyder appointed an

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[water pipeline](#) from Lake Huron was built. Although the river water was highly corrosive, Flint officials failed to treat it, and lead leached out from aging pipes into thousands of homes.



Five-month-old Dakota Erlen of Flint gets blood drawn from her heel in order to have her lead levels tested at Carriage Town Ministries in 2016.

Brittany Greeson

Lead levels in Flint water

Soon after the city began supplying residents with Flint River water in April 2014, [residents started complaining](#) that the water from their taps looked, smelled, and tasted foul. Despite [protests](#) by residents lugging jugs of discolored water, officials [maintained](#) that the water was safe. A study conducted the following year by researchers at Virginia Tech [revealed](#) the problem: Water samples collected from 252 homes through a resident-organized effort indicated citywide lead levels had spiked, with [nearly 17](#)

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measured above 5 ppb of lead, which the researchers considered an indication of a “very serious” problem.

Even more alarming were [findings](#) reported in September 2015 by Flint pediatrician Mona Hanna-Attisha: The incidence of elevated blood-lead levels in children citywide had nearly doubled since 2014—and nearly tripled in certain neighborhoods. As Hanna-Attisha [noted](#), “Lead is one of the most damning things you can do to a child in their entire life-course trajectory.” In Flint, [nearly 9,000](#) children were supplied lead-contaminated water for 18 months.

More problems with Flint water

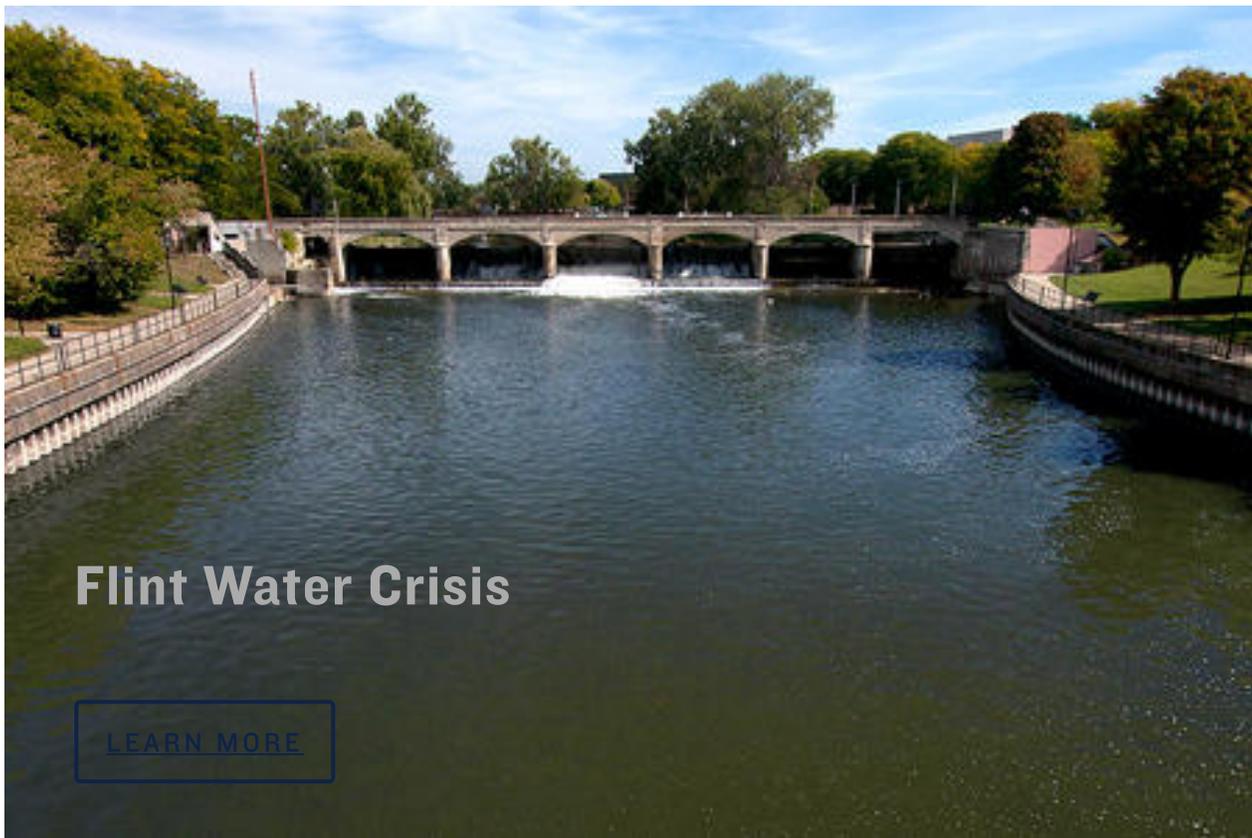
Flint’s water supply was plagued by more than lead. The city’s switch from Detroit water to the Flint River coincided with an outbreak of [Legionnaires’ disease](#) (a severe form of pneumonia) that killed 12 and sickened at least 87 people between June 2014 and October 2015. The [third-largest](#) outbreak of Legionnaires’ disease recorded in U.S. history—as well as the discovery in 2014 of fecal coliform bacteria in city water—was [likely a result](#) of the city’s failure to maintain sufficient chlorine in its water mains to disinfect the water. Ironically, the city’s corrective measure—adding more chlorine without addressing other underlying issues—created a [new problem](#): elevated levels of [total trihalomethanes](#) (TTHM), cancer-causing chemicals that are by-products of the chlorination of water.

Flint residents go to court

One of the few bright spots of the Flint water crisis was the response of everyday citizens who, faced with the failure of city, state, and federal agencies to protect them, united to [force the government to do its job](#). On the heels of the release of test results in the fall of 2015 showing elevated lead levels in Flint’s water—and its children—[local residents joined with NRDC and other groups](#) to petition the U.S. Environmental

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Flint Water Crisis

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In early 2016, a coalition of citizens and groups—including Flint resident Melissa Mays, the local group Concerned Pastors for Social Action, NRDC, and the ACLU of Michigan—[sued](#) the city and state officials in order to secure safe drinking water for Flint residents. Among the demands of the suit: the proper testing and treatment of water for lead and the replacement of all the city’s lead pipes. In March 2016, the coalition took additional action to address an urgent need, [filing a motion](#) to ensure that all residents—including children, the elderly, and others unable to reach the city’s free water distribution centers—would have access to safe drinking water through a bottled water delivery service or a robust filter installation and maintenance program.

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the following March with a [major settlement](#) requiring the city to replace the city's thousands of lead pipes with funding from the state, and guaranteeing further funding for comprehensive tap water testing, a faucet filter installation and education program, free bottled water through the following summer, and continued health programs to help residents deal with the residual effects of Flint's tainted water.

But the work of Flint residents and their advocates isn't finished yet. Ensuring that the provisions of the 2017 settlement are met is an ongoing task. Indeed, members of the lawsuit have already [returned to court](#) to see that the city properly manages its lead service line replacement program and provides filters for faucets.



Melissa Mays and other Flint residents address the media after the House Oversight and Government Reform Committee hearing to examine the Flint water situation in 2016.

Molly Riley/Associated Press

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Governor Snyder seemed to signal the all-clear in April 2018 when he [announced](#) that the city would stop providing bottled water to residents. Indeed, there is some evidence that the situation in Flint is improving, with lead levels [remaining below the federal action level](#) for the past four six-month monitoring periods, from July 2016 to June 2018.

However, it is important to note that thousands of Flint residents are still getting their water from lead pipes. The federal action level for lead is not a health-based number; it merely is an administrative trigger for remediation by the water utility. The EPA and other health authorities agree that there is [no safe level](#) of lead in water, so the continuing use of lead pipes by thousands of Flint residents remains a concern, particularly in light of their cumulative lead exposure over many years.

The [FAST Start program](#) implemented by the city in March 2016 is working to replace the thousands of lead and [galvanized steel](#) service lines that connect Flint water mains to city homes by 2020. But as of October 2018, only a little more than 7,500 pipes had been upgraded. The slow pace of progress drew the group of residents working with NRDC back to [court](#) to demand that Flint comply with its obligations to identify and replace lead pipes and supply filters to residents after each pipe replacement.

Flint water crisis charges

In early 2016, Michigan Attorney General Bill Schuette [announced](#) an independent review to “determine what, if any, Michigan laws were violated” during Flint’s drinking water disaster. Over the course of his investigation, [15 people](#) have been charged as criminally responsible for causing or contributing to the crisis.

To date, the most senior official to be charged is Nick Lyon, director of Michigan’s Department of Health and Human Services (MDHHS) who is [standing trial](#) for

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Among [other officials charged](#) are the state's chief medical executive, Dr. Eden Wells, who allegedly threatened to withhold funds for a project after researchers began looking into the Legionnaires' outbreak, and four state officials charged with tampering with lead test results and instructing residents to flush their taps ahead of testing (which can produce artificially low lead-level results). Two former Flint emergency managers, three Flint city officials, and a handful of Michigan Department of Environmental Quality (MDEQ) and MDHHS employees have also been charged. Meanwhile, Governor Snyder has not been charged with any crime.



Resident Lorenzo Lee Avery Jr. stands outside of Flint City Hall during a Flint Lives Matter event in 2016. The city's ongoing water crisis has left residents dependent on bottled water.

Brittany Greeson

Why Is Lead-contaminated Water Bad?

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famous baths as well as their aqueducts. Not surprisingly, the word *plumbing* is a derivative of *plumbum*, the Latin word for lead.

Yet then as now, lead exposure was linked to [serious health impacts—even madness and death](#). Modern science shows that even [low levels](#) of lead can impair the brain development of fetuses, infants, and young children. The damage can reverberate for a lifetime, reducing IQ and physical growth and contributing to anemia, hearing impairment, cardiovascular disease, and behavioral problems. Large doses of lead exposure in adults has been linked to high blood pressure, heart and kidney disease, and reduced fertility.

Pure lead pipes, solder, and fittings were banned from U.S. water systems in 1986 (it was only in 2014 that allowable lead levels in plumbing and fixtures dropped to 0.25 percent), and national regulations for lead testing and treatment of public water supplies were established in 1991 with the [Lead and Copper Rule](#). While action by the water utility is required once the level of lead in public water supplies reaches 15 ppb (as measured at the 90th percentile of samples collected), the EPA [acknowledges](#) that “there is no safe level of exposure to lead.” Independent tests conducted in fall 2015 [revealed](#) that nearly 17 percent of samples from hundreds of Flint homes measured above the 15 ppb federal lead action level, with several samples registering above 100 ppb.

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Beyond Flint

Far more than pipes were corroded during the Flint water crisis. City, state, and federal missteps also destroyed residents' trust in government agencies. Even if studies indicate Flint's water is safe, it's tough to expect its families to drink a glass of tap

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Fortunately, a majority of Americans have access to safe water, a luxury most of us probably enjoy with little thought. But Flint serves as a reminder that safe water isn't a guarantee. A recent [NRDC analysis](#) found thousands of community water systems have violated federal drinking water laws, including the Lead and Copper Rule, which provides safeguards against lead. Meanwhile, there are [many contaminants](#) that aren't even monitored or regulated, such as perchlorate (a component of rocket fuel) and [PFOA/PFOS/PFAS](#) (chemical cousins of Teflon).

To protect our water supplies, it is crucial that we upgrade our nationwide water infrastructure, prioritizing the replacement of an [estimated](#) 6.1 million lead service pipes. Strengthening existing government protections, including the Lead and Copper Rule, is also critical. Michigan is now [leading the way](#), strengthening the state Lead and Copper Rule to require that all lead service lines be replaced within 20 years, among other provisions. Though not without flaws, the rule now gives the state the strongest lead drinking water protections in the country.

If you are [concerned about your own drinking water](#), take a look at your water utility's annual water quality report (also called a consumer confidence report), which is usually posted online and is required to disclose if contaminants have been found in your water. If contaminants have reached dangerous levels, the water supplier is required to send customers public notification. The EPA's [Safe Drinking Water Information System](#) also maintains information about public water systems and their violations. You can go one step farther by having your water tested, either by your water supplier (which may provide this service for free) or by a [certified lab](#).

If you discover your water is contaminated, one option is to use [NSF-certified water filters](#) that are designed to eliminate specific contaminants. It is most important, though, that you notify your water utility. If necessary, you can also contact your

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As NRDC President Rhea Suh [noted](#) at the height of the crisis, “When it comes to providing public services, few things are more fundamental than clean drinking water. What happened to the people of Flint should never have happened. Let’s make sure it doesn’t happen again.”



Turning on the Tap in America

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NRDC IN ACTION

Fighting the Tide of Watered Down Justice



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Inside the Fight for Clean Water in Newark

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NORTHEAST DISPATCH

At Least 82 Percent of New York Schools Have a Lead Problem

The state now requires its public schools to test their drinking water for lead. But few districts have made it clear how they're addressing the troubles at their taps.



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An Uphill Battle, and Persistence, in Flint

These four NRDC lawyers would finish each other's thoughts—at any odd hour of the day or night—in their quest to help victims of the city's lead crisis.



ON LOCATION

Fighting for Justice in Flint

Partnering with NRDC and ACLU, residents of this Michigan city took their local government to court in a battle for safe drinking water.

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PERSONAL ACTION

How to Protect Yourself from Lead-Contaminated Water

Residents of cities like Pittsburgh and Newark continue to face high levels of this toxic metal in their drinking water supplies. Here's what to do if this crisis affects you.

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Flint Drinking Water Settlement FAQ

The residents of Flint, Michigan, will finally get their lead pipes replaced and have access to safe drinking water. Here's what you need to know.

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GUIDE

[Water Pollution: Everything You Need to Know](#)

Our rivers, reservoirs, lakes, and seas are drowning in chemicals, waste, plastic, and other pollutants. Here's why—and what you can do to help.

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